

Message from the Director



As the Director of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), I am pleased to present this annual compendium highlighting the research efforts and programs supported by the Institute. The NIDDK has a broad research responsibility that includes some of the most common, debilitating, and costly conditions affecting Americans. These conditions include diabetes and other endocrine and metabolic diseases, such as cystic fibrosis; liver disease and other digestive diseases, such as inflammatory bowel disease; nutritional disorders and obesity; kidney diseases, such as polycystic kidney disease; urologic diseases and conditions, such as interstitial cystitis/painful bladder syndrome; and hematologic diseases.

The 13th edition of this report illustrates recent NIDDK-supported scientific advances, such as:

- Identification of genetic variants associated with elevated risk for type 2 diabetes in African American and South Asian populations
- Demonstration that controlling blood glucose early in the course of type 1 diabetes preserves kidney function for decades
- Findings from a clinical trial that lifestyle changes leading to weight loss and increased physical fitness slow the decline in mobility in overweight or obese adults with type 2 diabetes
- Discovery that the composition of bacterial species that populate the human gut evolves with age and differs among people from diverse geographic regions
- Identification of cellular factors that induce fat-storing white adipose tissue to take on properties of calorie-burning brown adipose tissue
- Finding that obesity and high-fat diet are associated with damage to an area of the brain that regulates body weight
- New insights that illuminate the complex system of regulation surrounding kidney fibrosis following injury
- Findings from a clinical trial that invasive and costly tests commonly performed in women before surgery for stress urinary incontinence may not be necessary in many cases
- Demonstration that nutritional supplementation with an essential amino acid improves the anemia and developmental defects associated with Diamond-Blackfan anemia in animal models

This report also includes personal stories of patients. The mother of a child with type 1 diabetes explains the daily effort required to manage the disease and her family's dedication to participating in research to combat it. A college student shares his experience participating in a clinical trial to test treatment options for type 2 diabetes in youth. A woman describes the challenges of living with cystic fibrosis and her experience participating in a clinical trial testing treatments for cystic fibrosis-related diabetes. A woman donates a portion of her liver to her friend with chronic liver disease; both share their perspectives on this gift of life. A woman with interstitial cystitis/painful bladder syndrome and irritable bowel syndrome shares her experience participating in a research network to understand the underlying causes of urological chronic pelvic pain syndromes.

The NIDDK is continuing efforts to ensure that knowledge gained from its research advances is disseminated to health care providers, patients, and the general public. Such efforts include the Institute's education programs: the National Diabetes Education Program and the National Kidney Disease Education Program. Additionally, the Weight-control Information Network, the National Diabetes Information Clearinghouse, the National Digestive Diseases Information Clearinghouse, and the National Kidney and Urologic Diseases Information Clearinghouse develop and distribute science-based information on diseases and disorders within the NIDDK mission.

Several hundred brochures, fact sheets, and publications are available in printed format and on the NIDDK web-site so that they are readily available for patients, health care providers, and the public. I invite you to visit the web-site at www.niddk.nih.gov

The efforts featured in this publication reflect the core mission of the NIDDK, including the Director's guiding principles:

- Maintain a vigorous investigator-initiated research portfolio
- Support pivotal clinical studies and trials
- Preserve a stable pool of talented new investigators
- Foster exceptional research training and mentoring opportunities
- Ensure knowledge dissemination through outreach and communications

This report reflects only a fraction of the immense body of NIDDK-funded research performed by basic scientists, clinical investigators, and patient volunteers. Moving forward, we remain committed to supporting these important areas of research and translating scientific discoveries into improvements in the health and quality of life of all people.



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Director

National Institute of Diabetes and Digestive and Kidney Diseases

National Institutes of Health

U.S. Department of Health and Human Services



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